THE MOHAWK DAM

By KENNON VAIL, '40

Discussion of Muskingum Valley Project

WHILE other communities throughout the nation seek protection against damage by floods, the $40,000,000 Muskingum Valley Conservancy Project goes on. Thousands of men are at work on the project designed to definitely remove the flood menace from 18 counties located in the area drained by the Muskingum River and its tributaries.

This Muskingum Valley Watershed Program is the largest flood control project by reservoir retention in the United States, and is the first co-operative effort of its kind between the Federal Government, a state, and a political subdivision. What is being done in Ohio to harness the Muskingum River offers a shining example to every flood-ridden section in America. Here the Federal Government, the State of Ohio, and the people most benefited have joined hands in a common enterprise, the cost of which has been equally distributed in proportion to the benefits received.

A Federal grant of $26,000,000 will finance all construction and also the relocation of railroads and public utilities. The State of Ohio made a legislative appropriation of $2,000,000 and will spend in addition an estimated $7,000,000 to relocate highways affected by the projects. The remainder of the cost, approximately $7,000,000, will be borne by private and industrial property owners, public utilities, and public corporations now subjected to flood damage but who will be protected from that damage when the project is completed.

The Muskingum Valley Project is a reality today, because Ohio had enough vision to enact as a law, in 1914, the *Conservancy Act,* which permits organizations of political subdivisions to enter into contracts with the Federal and State Governments for the purpose of flood control and to assess a portion of the cost against the benefited property owners.

Inasmuch as this project is an experiment it is viewed as highly significant in Washington, D. C., as it may furnish the policy of legislation which Congress will follow in the future in regards to obligating the Federal Government in the cost of flood control in various projects throughout the country.

The Muskingum Conservancy District was established in 1933 by a Conservancy Court comprised of one common pleas judge from each of 18 counties, on petition of free land-holders of the valley. The district embraces an area of about one-fifth of the state and contains a population of 900,000 people. The affairs of the district are under supervision of a board of directors with W. O. Littick of Zanesville as chairman.

All construction work on the project is in charge of United States Army Engineers, but the actual work of construction is accomplished by individual concerns who have offered competitive bids in the individual projects. All work and materials, however, are closely inspected by the army corps.

The following 18 counties are included in the district: Ashland, Holmes, Tuscarawas, Washington, Coshocton, Harrison, Carroll, Wayne, Muskingum, Morgan, Belmont, Knox, Richland, Summit, Stark, Licking, Noble, and Guernsey.

Description of Mohawk Dam

The Brewster Construction Company of Bogota, New Jersey, was awarded the contract for the construction of the Mohawk Dam with their low bid of $1,720,664. The Brewster Company is a fairly large construction company inasmuch as they bid on Boulder Dam and it takes considerable capital to even contemplate a job like that.

The Mohawk Dam is located 15 miles northwest of Coshocton, Ohio, near U. S. Highway No. 36 and on the Walhonding River, a main tributary of the Muskingum River. This dam is the key-dam of the whole conservancy district and is the second highest of all of the 14 dams, being exceeded in height only by the Pleasant Hill Dam. The Mohawk Dam is a flood or dry dam and therefore will be dry during normal weather conditions but will have an area of 7,950 acres and extend 15 miles upstream at full reservoir capacity.

The dam is curved and extends from the hill on the north to the hill on the south; it is probably one of the most difficult of all the sites on which to build. Much of the work is being performed on the sheer cliff-side, roads being cut through to permit operation of power shovels, tractors, and trucks. The dam is 2,300 feet in length and 115 feet in height with a base width of 650 feet.

The central portion of the dam embankment is being built with impervious clay and gravel material, and the outer portions with pervious materials grading from finer sizes near the impervious material to coarse sizes near the slopes. There is a layer of rock fill on the upstream side of the dam, while the downstream side is to be covered with sod.

The water elevation in times of flood is controlled by two concrete tunnels 430 feet in length and extending through the dam. These tunnels have six gates, 8 x 17 ft. During flood season these gates will be closed, but in normal times the gates will be open and the Walhonding River with flow through undisturbed.

A gate-house is being built on top of the dam where a caretaker will live and from whence he can open and close the gates and thus control the flow of the water.

The Brewster Company is using the newest and most modern methods and machinery available in the construction of the dam. All the concrete used on the job is mixed at one central mixer and is conveyed by pipes to the particular spot where it is needed. One of the most ingenius pieces of machinery used on the job is the Euclid Track Truck, used by the company to move excavated earth and rock from place to place. These track-trucks are of the gondola or semi-trailer type and are capable of handling enormous quantities of dirt, rock, and materials. The trucks are continually busy because 2,198,200 square feet of earth embankment has to be constructed and 581,000 cubic yards of rock fill has to be made before the dam is completely finished.

The work on the Mohawk Dam has been slowed down considerably by inclement weather conditions during the past two years, so the engineer in charge of construction went to Zanesville, Ohio, and leased the lights from a night baseball park, so that now it is possible to work four shifts of men during the entire 24 hours of the day and thus get caught up on the delayed work necessary. If weather conditions prove satisfactory, the dam will be finished according to contract in August of this year, and will be ready for use at that time.

Benefits of Muskingum Valley Project

The chief purpose of the project is to provide flood control and water conservation in the Muskingum Valley which will substantially contribute to flood control in the Ohio Valley. The chief engineer of the Mohawk said that if the dam system had been in operation in 1913, the flood heights would have been reduced considerably in the cities along the river. The crest would have been 7 feet lower in Massillon, 12 feet lower in Dover, 10 feet lower in Coshocton and Newcomerstown, and 15 feet lower in Zanesville and McConnelsville and that at Marietta the Ohio River would have received from the Muskingum 126,006 cubic feet less water per second than it actually did receive and would thus have reduced the lower Ohio flood crest 6 feet.

Eleven of the dams of the project will create permanent reservoirs varying in size from 350 to 3,600 acres. These reservoirs will have additional capacity for flood storage. The other three dams will impound water only in time of flood. The largest of the permanent pools, at the Seneca Dam, will displace Buckeye Lake as the third largest body of inland water in Ohio, and will be exceeded in size only by Indian Lake and St. Mary's Lake.

The construction of the 14 dams and 11 levees called for in the project will make necessary some changes in 65 miles of gas lines, 13 miles of oil lines, 66 miles of powerhouse lines, 207 miles of telegraph and telephone lines, and relocation of 61 miles of railroads and 150 miles of highways. The project also calls for extensive channel improvements in the various rivers so that the streams will be navigable in many places.

The engineers at work on the Mohawk Dam have figured out a theoretical water line, estimating just how much of the valley behind the dam would be under water in case of a major flood, when the gates are closed for the safety of Warsaw, Coshocton, and other downstream points. This line spells the doom of the dam site. In Walhonding, 24 houses, a barber shop, grain mill, four filling stations, and the town hall will have to be moved to higher ground, and in Brinkhaven, 30 houses, a beer parlor, a barber shop, and a general store will also have to be moved to a higher level.

The dam also affects two lines of the Pennsylvania Railroad. The Cleveland, Akron, Cincinnati and Columbus Railway (Akron Division) dips 16.6 feet below the theoretical reservoir at Brinkhaven. It is proposed to relocate this line for a distance of 1.55 miles as well as build a new bridge across the Mohican River at Brinkhaven.

United States Highways No. 36 and No. 62, and State Route No. 206, and 25 miles of county, township, and other roads will be relocated by the state highway department.

Minor changes are contemplated for lines and collecting facilities in small gas and oil fields west of Walhonding, and near Brinkhaven. Numerous telephone and power lines will also have to be changed.

The fact that the Mohawk Dam is going to serve the purpose for which it is being built was proven in the recent disastrous floods in the Muskingum Valley. Although the dam was only partially completed, the flood gates were closed and enough water held back to lower the flood level at Coshocton 10 feet below the expected crest.

Modern motorists run down pedestrians because their windshields are totally obscured by safety stickers.

Communist Father—But why do you play truant? What makes you stay away from school?

Son—Class hatred, father.

Waitress: "And how did you find your steak, sir?

Stude: "Oh, I just moved my potato and there it was."

Professor—You missed class yesterday, didn't you?

Freshie—Not in the least, sir, not in the least.

English 410—Mr. Smaltz, correct this sentence: "Girls is naturally better looking than boys."

Smaltz: "Girls is artificially better looking than boys."

Barber—"Was your tie red when you came in?"

Customer—"No."

Barber—"Gosh."